

**Fruit and Vegetable Consumption in California Adults  
Ten-Year Highlights  
from the  
*California Dietary Practices Surveys*  
1989-1999**

**California Department of Health Services  
Cancer Prevention and Nutrition Section**

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# **Fruit and Vegetable Consumption in California Adults Ten-Year Highlights from the California Dietary Practices Surveys 1989-1999**

## **About This Report**

This report highlights the most important trends in fruit and vegetable consumption over the 10-year period from 1989 to 1999, emphasizing the new findings from the 1999 *California Dietary Practices Surveys (CDPS)*. It also summarizes the latest public health recommendations about fruits and vegetables and reveals:

- Disparities in fruit and vegetable consumption;
- Increased public awareness;
- Heightened barriers to eating more fruits and vegetables;
- Widening gaps in fruit and vegetable consumption depending on where people ate; and
- Opportunities for policy and environmental solutions.

## **Why eat more fruits and vegetables?**

Heart disease, cancer and stroke are California's top three causes of death.<sup>1</sup> It is projected that eating at least 5 servings of fruits and vegetables would reduce the incidence of cancer by about 20 percent.<sup>2</sup> Eating 5 to 9 daily servings of fruits and vegetables will significantly reduce the risk of heart attack, stroke, hypertension, and possibly certain lung diseases, gastrointestinal problems, birth defects, obesity, diabetes, and some signs of aging.<sup>3</sup>

## **Are 5 daily servings of fruits and vegetables enough?**

The goal of the National 5 A Day Partnership, an expanded collaboration of public health and produce industry organizations, is to increase consumption to at least 5 servings a day of fruits and vegetables by all Americans no later than 2010.<sup>4</sup> However, for most people, 5 daily servings is only a starting point. According to the Federal government's *Dietary Guidelines for Americans*, older children, teenage girls, active women, and most men need 7 or more servings, while teenage boys and physically active men should be aiming for 9 daily servings.<sup>5</sup>

## **What else does the latest research reveal about fruits and vegetables?**

Research shows that the more colors of fruits and vegetables you see on your plate, the greater the health benefits.<sup>6</sup> Groups of fruits and vegetables, signified by their colors, contain phytonutrients that help reduce chronic disease risk. The major color groups are green, red, yellow/orange, blue/purple, and white. For example, green vegetables such as broccoli and Brussels sprouts, and green fruits like kiwi and honeydew melon, contain indoles and lutein, respectively. Indoles may reduce the risk of cancer, particularly of the breast and prostate. Lutein helps maintain good vision and reduces the risk of cataracts.

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<sup>1</sup> California Department of Health Statistics. Vital Statistics Data Tables 2000. TABLE 5-12. LEADING CAUSES OF DEATH BY RACE/ETHNIC GROUPS\* AND SEX, CALIFORNIA, 2000 (By Place of Residence); <http://www.dhs.cahwnet.gov/hisp/chs/OHIR/vssdata/2000data/2000MStateEX.htm>; accessed 8/23/02.

<sup>2</sup> World Cancer Research Fund, American Institute for Cancer Research. (1997). *Food, Nutrition and the Prevention of Cancer a Global Perspective*. Washington D.C.: Published by the American Institute for Cancer Research. Page 539.

<sup>3</sup> Hyson D. (2001). *The health benefits of fruits and vegetables, a scientific overview for health professionals*. Wilmington, DE: Produce for Better Health Foundation.

<sup>4</sup> [www.5aday.gov](http://www.5aday.gov)

<sup>5</sup> United States Department of Agriculture, United States Department of Health and Human Services (2000). *Dietary Guidelines for Americans*. 5th Edition, Home and Garden Bulletin No. 232.

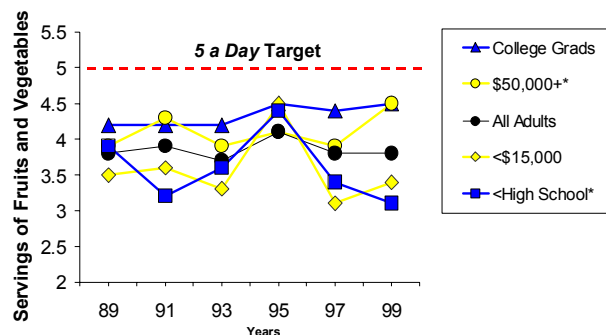
<sup>6</sup> National Cancer Institute (2002). *Savor the spectrum: color your daily diet with fruits and vegetables*. Washington, DC: National Cancer Institute.

## SURVEY HIGHLIGHTS

### Are there differences in fruit and vegetable consumption among demographic groups of Californians?

For California adults, fruit and vegetable consumption peaked in 1995. Differences among racial/ethnic, income, and educational groups widened between 1989 and 1999. Over the last ten years, consumption increased during the first *California 5 a Day Campaign* in 1989-1991, dropped when the *Campaign* ended, rose again with the peak of the *National 5 A Day Program* in 1995, and then dropped in 1997 as publicity about the *Program* waned. For Latino Californians, the 1991 drop in consumption was reversed in 1995, concurrent with the introduction of the Spanish-language *Latino 5 a Day Campaign*. For African American Californians, however, intake began decreasing in 1991. For Asian/Pacific Islander Californians, new information for 1999 shows consumption levels similar to Latino adults.

Figure 2: Disparities in total fruit and vegetable consumption increased. California Adults, 1989-1999

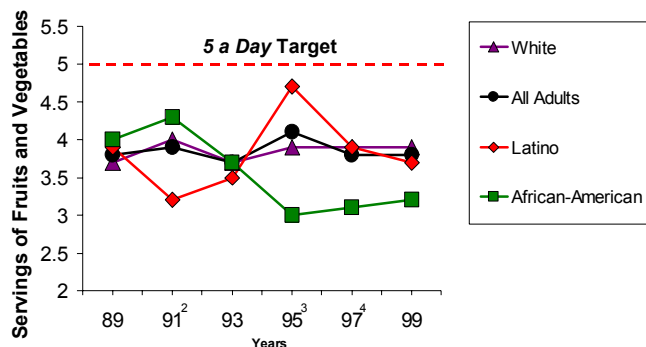


\* Change between 1989-1999 is statistically significant at the p<.05 level.  
Source: California Dietary Practices Survey, California Department of Health Services, 2002

### Belief about eating enough fruits and vegetables for good health increased

There has been a strong upward trend in Californians' belief that they need at least 5 daily servings of fruits and vegetables to maintain good health. Belief about a number of servings to eat each day is important because it is highly related to consumption. For the general adult population, the belief that 5 servings is needed nearly doubled between 1989 and 1995, rising a highly significant 20 percentage points to 44 percent of all adults by 1995, when California's consumption was highest.

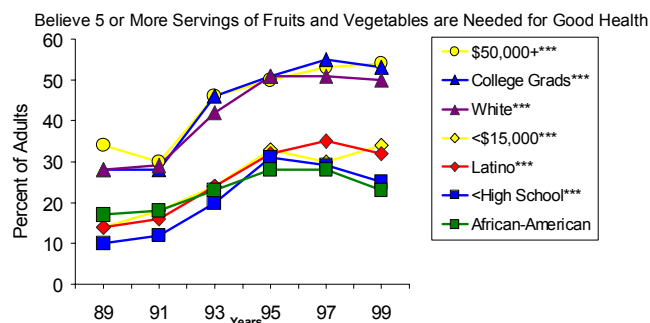
Figure 1: Overall, fruit and vegetable consumption was flat until the 1990's except after campaigns. California Adults<sup>1</sup>, 1989-1999



<sup>1</sup>1999-First Asian/Pacific Islander data point, 3.7 servings <sup>2</sup>Prototype 5 a Day Campaign peaked  
<sup>3</sup>Prototype Latino 5 a Day Campaign peaked <sup>4</sup>Launch of California Nutrition Network  
Source: California Dietary Practices Survey, California Department of Health Services, 2002

Throughout the 1990's, the lowest income Californians consistently reported eating fewer servings of fruits and vegetables than those with household incomes greater than \$50,000 (the survey's highest income category). The gap has nearly tripled during these years. An even greater difference was seen by education level, where the gap widened significantly in 1997 and 1999. Most important, in spite of national consensus that most adults should aim for 7 to 9 daily servings of fruits and vegetables, overall consumption reported by Californians did not rise during the 1990's.

Figure 3: The proportion of adults who believe eating 5 or more servings of fruits and vegetables is important has risen in most groups. California Adults, 1989-1999



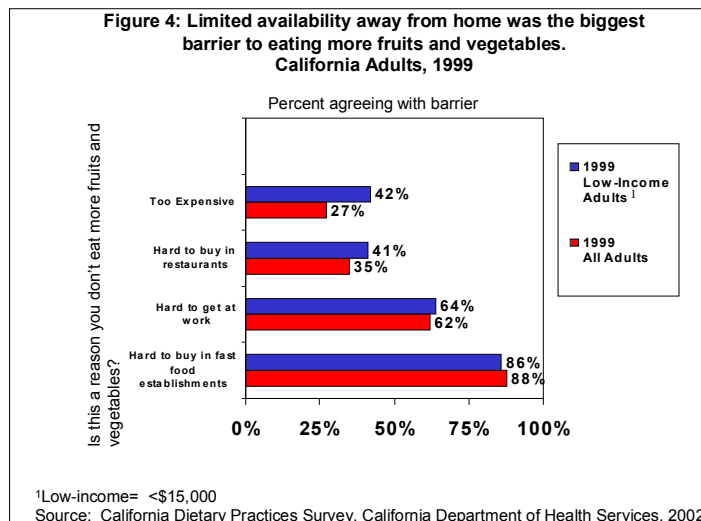
\*\*\* Change between 1989 and 1999 is statistically significant at the p<.001 level.  
Source: California Dietary Practices Survey, California Department of Health Services, 2002

Since 1995, however, there have been no further significant increases in this belief, and for the first time, there were slight decreases in some groups. The gaps widened significantly among several ethnic, education and income groups. Nonetheless, with belief in the importance of eating 5 servings a day so much higher than in 1989, why would consumption not continue to increase?

## Barriers to eating more fruits and vegetables are prevalent

In 1999 the most common reasons that Californians gave for not eating fruits and vegetables were that they are:

- “Hard to buy in fast food restaurants” (88 percent)
- “Hard to get at work” (62 percent)
- “Hard to buy in restaurants” (35 percent)
- “Too expensive” (27 percent)



Cost was a larger barrier to lower income groups, as well as to the Latino or less educated groups, for all of whom it averaged about 40 percent.

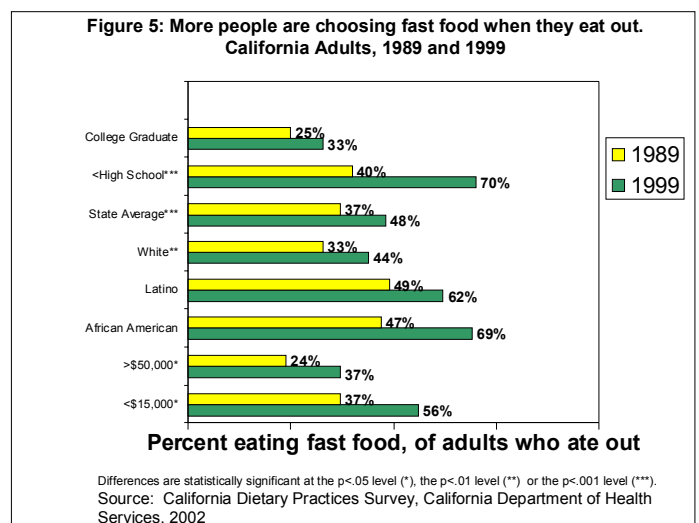
## Barriers to eating more fruits and vegetables have risen

Californians have consistently cited factors in their environment as the main reasons they did not eat more fruits and vegetables. For example, from 1995 to 1997, the proportion of adults naming work or restaurant/fast food as barriers rose 50 percent, from about 40 percent to nearly 60 percent of all adults.

In 1999 for the first time, survey questions about barriers to eating fruits and vegetables in fast food or other restaurants were asked separately. This revealed that nine out of ten adults saw fast food as a barrier, compared to one in three for other types of restaurants. The groups that reported fast food as a barrier most often were men, 25-34 years of age (97 percent), white (91 percent) and Asian/Pacific Islander (90 percent) adults.

## What patterns in eating out have changed?

The proportion of adults who reported eating at any type of restaurant on a typical day peaked in 1995 at 48 percent. It averaged between 41 and 44 percent in other years. From 1989 to 1999, the proportion of California adults eating fast food on a typical day rose from 15 percent to 21 percent, a highly significant increase. The percent of eating out that occurred in fast food venues compared to other restaurants also rose, from about one-third in 1989 to nearly half in 1999. This is important because California surveys consistently found that eating at restaurants was associated with lower daily fruit and vegetable consumption, particularly when it was fast food.



## During the 1990s, in which groups did fast food use increase most significantly?

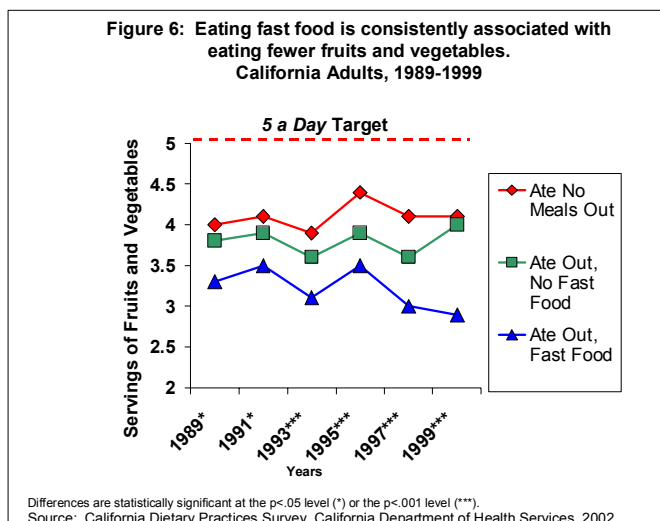
- Men, by 40 percent (to 48 percent of restaurant occasions);
- High school graduates, by almost 50 percent (to 59 percent of occasions);
- Very low income Californians, by 50 percent (to 56 percent of occasions);
- The \$35,000 to \$50,000 income group, by 60 percent (to 58 percent of occasions); and
- Adults with less than high school education, by 75 percent (to 70 percent of occasions).

In addition, groups that chose fast food more often in 1989 tended to continue doing so throughout the 1990's. Going to a fast food restaurant when eating out rose from nearly half for Latino and African American adults in 1989 to about two-thirds by 1999. Although eating out occurred least often among the groups with the lowest incomes and education, rates of increase were among the highest.

In contrast, the groups with the highest income or education were the least likely to choose fast food in both 1989 and 1999. They were among the few groups whose choice of fast food suggested a slower rising trend.

### How do changes in eating out affect fruit and vegetable consumption?

Until 1999, people who ate only at home reported the most servings of fruits and vegetables, people who chose fast food ate the fewest, and people eating at other restaurants fell in between. For the first time in 1999, fruit and vegetable consumption levels when eating at home or eating in a restaurant other than fast food were not significantly different, and the gap in consumption at fast food compared to other restaurants widened greatly. In addition, the differences in number of servings of fruits and vegetables between adults who ate at home or who ate fast food continued to widen in 1999.



Therefore, the trend to eat fast food more often appears to be an increasingly significant factor contributing to low fruit and vegetable intake.

### What could be done to help Californians eat 5 to 9 daily servings of fruits and vegetables for better health?

A change in current fruit and vegetable consumption trends is needed to reduce the risk of multiple diseases and help control health care costs. This survey suggests that two complementary approaches are needed: Increased promotion and marketing, and reduced environmental barriers.

Specific strategies for individuals and organizations include:

- ❑ **For Meals at Home → Buy California Grown!** Make your meals colorful, interesting, and delicious. The produce industry, grocers and farmers' markets could encourage shoppers to take more advantage of our state's vibrant harvest of fruits and vegetables—green, orange, red, blue/purple, and white. Retailers could intensify their promotion of fresh, frozen, canned and dried fruits and vegetables—as well as 100 percent juices—and put ready-to-eat produce items “on special” more often.
- ❑ **At Fast Food Restaurants →** National and other chain restaurants could offer new, fun “signature” and value-priced entrées and side dishes with plenty of fruits and vegetables—including combo meals and kids' promotions—and market them on television, at point of sale, with merchandise, through cross-promotions and in public relations.
- ❑ **At Other Restaurants →** Owners could encourage chefs to create new entrées, appetizers, side dishes, and desserts with lots of fruits and vegetables, and then train restaurant staff to promote them with patrons.
- ❑ **At Work →** Workers could ask, and employers could ensure, that a variety of fruits and vegetables be made available in cafeterias and vending machines, that pricing is favorable, and that fruits and vegetables are served at meetings and social events.
- ❑ **For Lowest Cost →** Consumers can shop for fresh fruits and vegetables in season and on special, take advantage of store brands for frozen and canned varieties, patronize farmers' markets, and plant home or community gardens. Retailers can do more to welcome the use of Food Stamps in produce departments and farmers' markets.
- ❑ **To Reach Californians at Greatest Risk →** Health programs need to continue to educate communities about the many benefits of colorful fruits and vegetables, to increase awareness about the need for 5 to 9 daily servings, and to reduce environmental barriers so that healthy choices become the easiest choices.



## Survey Methods

The *California Dietary Practices Survey (CDPS)* of adults has been conducted every other year since 1989. In 1999, 1,492 adults 18 years and over were selected by random digit dialing techniques. The response rate was 55 percent. Respondents provided a 24-hour fruit and vegetable dietary recall and answered a wide variety of questions including those about other foods, out-of-home eating, physical activity, and height and weight.



## California Department of Health Services Programs

The following initiatives are conducted by the California Department of Health Services and administered in part by the Public Health Institute. Funding has been made possible by The California Endowment, the Centers for Disease Control and Prevention, the in-kind contributions of state and local agencies, and the United States Department of Agriculture's Food Stamp Program, an equal opportunity provider, in partnership with the California Department of Social Services.



## California Nutrition Network for Healthy, Active Families (Network)

The mission of the *Network* is to create innovative partnerships so that low-income Californians are encouraged and enabled to adopt healthy eating and physical activity patterns as part of a healthy lifestyle. Its goals are to increase Californians' consumption of fruits and vegetables to 5 to 9 daily servings, increase daily physical activity to at least 30 minutes for adults and 60 minutes for children, and help reach full participation in Federal food assistance programs so as to obtain their public health benefits. In 2002, the *Network* funded over 140 local projects. These included Local Incentive Awards (LIAs), special projects with faith and food security partners, California Project LEAN regions, and regional coalitions through the *5 a Day—Power Play! Campaign*.



## California 5 a Day—for Better Health! Campaign

The *5 a Day Campaign* is a statewide initiative that aims to empower Californians to consume 5 or more servings of fruits and vegetables and be physically active every day in order to reduce the risk of chronic diseases, especially cancer, heart disease, and obesity. Special initiatives include the *Children's 5 a Day—Power Play! Campaign*, the *Latino 5 a Day Campaign*, and the *5 a Day—Retail Program*. California is a partner in the National 5 A Day Program, a public/private partnership led by the National Cancer Institute, the Centers for Disease Control and Prevention, the United States Department of Agriculture, the American Cancer Society, and the nation's produce industry.



## California Project LEAN (CPL)

The 12 CPL regions serve as Local Lead Agencies for the *Network* by involving local organizations that serve low-income consumers and consumer representatives in coalitions, conducting community-based social marketing interventions, working with local media and organizations to promote healthy eating and physical activity, and otherwise working to achieve the *Network's* goals.



## Public Health Institute (PHI)

The Public Health Institute (PHI) is an independent, nonprofit organization dedicated to promoting health, well-being and quality of life for people throughout California, across the country and around the world. PHI partners with the California Department of Health Services in starting up and in managing many innovative public health programs including the *California 5 a Day Campaign*, *California Nutrition Network*, and *California Project LEAN*.

Funding for the biennial California Dietary Practices Surveys has been provided by: the National Cancer Institute (1989, 1991), the Centers for Disease Control and Prevention's Preventive Health and Health Services Block Grant (1993, 1995), the California Breast Cancer Act of 1993 (1995), The California Endowment (1997, 1999), and the United States Department of Agriculture Food Stamp Program (1997, 1999).

The surveys were administered by the Public Health Institute.